REMARKS

The final Office Action of November 25, 2009, has been received and reviewed.

Claims 1, 7, and 9-35 are currently pending and under consideration in the above-referenced application. Each of claims 1, 7, and 9-35 has been rejected.

Reconsideration of the above-referenced application is respectfully requested.

Related Applications

The Examiner's attention is respectfully drawn to Applicant's amendment to insert the Cross-Reference to Related Applications, wherein one or more related applications have been newly identified.

Rejections under 35 U.S.C. § 102(b)

Claims 16-31 have been rejected under 35 U.S.C. § 102(b) for reciting subject matter that is allegedly anticipated by the description provided by U.S. Patent 5,720,845 to Liu (hereinafter "Liu").

A claim is anticipated only if each and every element, as set forth in the claim, is found, either expressly or inherently described, in a single reference which qualifies as prior art under 35 U.S.C. § 102. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). That single reference must show the identical invention *in as complete detail* and *in the same arrangement as that contained in the claim. Net MoneyIn, Inc. v. Verisign*, 545 F.3d 1359, 1369-70 (Fed. Cir. 2008) (emphasis supplied); *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Independent claim 16 is drawn to a method for polishing at least one layer on a semiconductor device structure. The method of independent claim 16 includes polishing a first semiconductor device structure. As amended, independent claim 16 recites that any raised areas on the polished surface of the first semiconductor device structure are located to develop a pressure pattern to be used in subsequent polishing of semiconductor devices of the same type. The pressure pattern is then used to apply pressure to areas on the back side of a second semiconductor device structure that correspond to the raised areas on the polished surface of the

first semiconductor device structure. Such pressure is applied to the back side of the second semiconductor device before material on the active surface of the second semiconductor device is polished. Then, while maintaining the pressure, at least one layer of the second semiconductor device structure is polished.

In contrast to the method of independent claim 16, the description of Liu is limited to monitoring a semiconductor device structure during polishing and, based upon the monitored data, adjusting the amounts of pressure that are applied to different areas on the back side of that semiconductor device (*i.e.,* with in-polishing feedback). Liu does not expressly or inherently describe the development of a pressure pattern, or that such a pressure pattern may be used to apply pressure to a back side of a second semiconductor device structure (*i.e.,* without the requirement of in-polishing feedback). Nor does Liu provide any express or inherent description of a method in which pressure that is applied, in a pressure pattern, to the back side of a semiconductor device structure before polishing is continued during polishing. It is, therefore, respectfully submitted that Liu does not anticipate each and every element of amended independent claim 16, as would be required to maintain the 35 U.S.C. § 102(b) rejection of that claim.

Each of claims 17-31 is allowable, among other reasons, for depending from independent claim 17, which is allowable.

Claim 17 is further allowable since Liu provides no express or inherent description of a process in which metrology techniques are employed. Rather, the description of Liu is limited to a technique in which friction is monitored.

Claim 27 is additionally allowable since Liu does not expressly or inherently describe using a magnet to repel at least one pressurization structure toward the back side of a semiconductor device structure.

Claim 28 is also allowable because Liu neither expressly nor inherently describes using a magnet to attract at least one pressurization structure toward the back side of a semiconductor device structure.

Claim 30 is additionally allowable since Liu lacks any express or inherent description of a process in which a negative pressure is applied to at least one pressurization structure.

In view of the foregoing, withdrawal of the 35 U.S.C. § 102(b) rejections of claims 16-31 is respectfully solicited, as is the allowance of each of these claims.

Rejections under 35 U.S.C. § 103(a)

Claims 1, 7, 9-15, and 23-35 are rejected under 35 U.S.C. § 103(a) for being directed to subject matter that is purportedly not patentable over teachings from Liu, in view of the subject matter taught by Ashley, S., "Magnetostrictive actuators," http://www.memagazine.org/backissues/membersonly/june98/features/magnet/magnet.html, (American Society of Mechanical Engineers, accessed August 13, 2009) (hereinafter "Ashley").

There are several requirements in establishing a *prima facie* case of obviousness against the claims of a patent application. All of the limitations of the claim must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 985 (CCPA 1974); *see also* MPEP § 2143.03. Even then, a claim "is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007). The Office must also establish that one of ordinary skill in the art would have had a reasonable expectation of success that the purported modification or combination of reference teachings would have been successful. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). There must also "be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.*, quoting *In re Kahn*, 441, F.3d 977, 988 (Fed. Cir. 2006). That reason must be found in the prior art, common knowledge, or derived from the nature of the problem itself, and not based on the Applicant's disclosure. *DyStar Textilfarben GmbH & Co. Deutschland KG v. C. H. Patrick Co.*, 464 F.3d 1356, 1367 (Fed. Cir. 2006). A mere conclusory statement that one of ordinary skill in the art would have been motivated to combine or modify reference teachings will not suffice. *KSR* at 1396.

Liu describes a wafer polisher with a polishing head 13 that is configured to hold a wafer 12 and that includes a plurality of discrete actuators 23 that are configured to individually

apply different amounts of pressure to different locations on the back side of the semiconductor wafer 12.

The Office has asserted that the discrete actuators 23 of Liu may be magnetically biased. Office Action of November 25, 2009, page 4. Instead of being magnetically biased, Liu mentions that the discrete actuators 23 may comprise magnetostrictive elements, which operate under pulsed magnetic fields. As those of skill in the art are aware, and as Ashley clearly explains, a magnetostrictive element comprises a piston formed from a material that changes shape when exposed to a magnetic field. The piston is disposed within a cylinder that is surrounded by a coil. As a magnetic field is pulsed through the coil, the shape of the piston intermittently changes in a way that causes the piston to mechanically crawl through the cylinder.

Neither Liu nor Ashley describes a pressurization structure that applies pressure when exposed to a constant magnetic field, as is required by the methods of amended independent claim 1 and amended independent claim 7. (*See, e.g.,* paragraph **[0040]** for support). Therefore, neither Liu nor Ashley teaches or suggests each and every element of amended independent claim 1 or amended independent claim 7, as would be required for the teachings of Liu and Ashley to support a *prima facie* case of obviousness under 35 U.S.C. § 103(a).

Claims 9-15 are each allowable, among other reasons, for depending directly or indirectly from independent claim 1, which is allowable.

Claim 13 is additionally allowable because Liu does not expressly or inherently describe a method in which at least one raised area on an active surface of a first semiconductor device structure is located, then *another,* second semiconductor device structure of the same type is polished as pressure is applied to a corresponding area on the back side of the second semiconductor device. Instead, the description of Liu is limited to a technique in which various parameters are monitored as a semiconductor device is polished to enhance the planarity of a polished surface of *that* (*i.e.,* the same) semiconductor device.

Claims 32-35 are each allowable, among other reasons, for depending from independent claim 7, which is allowable.

In view of the foregoing, it is respectfully requested that the 35 U.S.C. § 103(a) rejections of claims 1, 7, 9-15, and 23-35 be withdrawn, and that each of these claims be allowed.

Entry of Amendments

It is respectfully requested that the proposed amendments be given sufficient consideration that a determination may be made as to whether they place any of the claims in condition for allowance or reduce the number of issues that remain for purposes of appeal. M.P.E.P. § 714.13(III).

Entry of the proposed claim amendments is respectfully solicited. It is respectfully submitted that none of the proposed claim amendments introduces new matter into the above-referenced application, and it is not believed that their entry would necessitate another search. It is also believed that the proposed claim amendments eliminate all of the issues that remain for purposes of appeal.

In the event that a decision is made not to enter the proposed claim amendments, their entry upon the filing of a Notice of Appeal in the above-referenced application is respectfully requested.

CONCLUSION

It is respectfully submitted that each of claims 1, 7, and 9-35 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing allowance of the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,

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